

Teaching in a Standards
Aligned System:
Linking
Assessment-Teaching-Learning

Pennsylvania Training and Technical Assistance
Network (PaTTAN)

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Teaching in a Standards Aligned System:
Linking Assessment-Teaching-Learning
Outcomes

- Demonstrate the connection between teaching, assessing and monitoring progress using content from PA's academic standards, anchors and curriculum framework
- Incorporate specific research-based principles into the content that students experience on a daily basis
- Use common language for assessment, teaching, learning, monitoring of progress and improving student achievement that focuses on an explicit use of academic standards and assessment anchors

Teaching in a Standards Aligned System:

Linking Assessment-Teaching-Learning

Agenda

- Least Restrictive Environment
- Teaching in a Standards Aligned System
 - Standards
 - Assessment
 - Curriculum
 - Instruction
 - Materials and Resources
 - Interventions

3

Teaching in a Standards
Aligned System:
Linking
Assessment-Teaching-Learning

Least Restrictive Environment



Pennsylvania's Commitment to Least Restrictive Environment (LRE)

Recognizing that the placement decision is an Individualized Education Program (IEP) team decision, our goal for each child is to ensure IEP teams begin with the general education setting with the use of Supplementary Aids and Services before considering a more restrictive environment.

Teaching in a Standards Aligned System:

Linking Assessment-Teaching-Learning Least Restrictive Environment (LRE)

- Education in and access to the general education curriculum, extracurricular activities or any other program that non-disabled peers can access
- Supplementary aids and services (specially designed instruction) necessary to access the general education curriculum
- Educated with non-disabled peers, to the greatest extent possible

Teaching in a Standards Aligned System

Linking Assessment-Teaching-Learning
Least Restrictive Environment (LRE)

- PA Standards Aligned System (SAS)
 - academic standards
 - anchors
 - curriculum frameworks
 - big ideas
- Evidence-based content, teaching, learning and curricular practices that enable all students to learn

7

Teaching in a Standards Aligned System

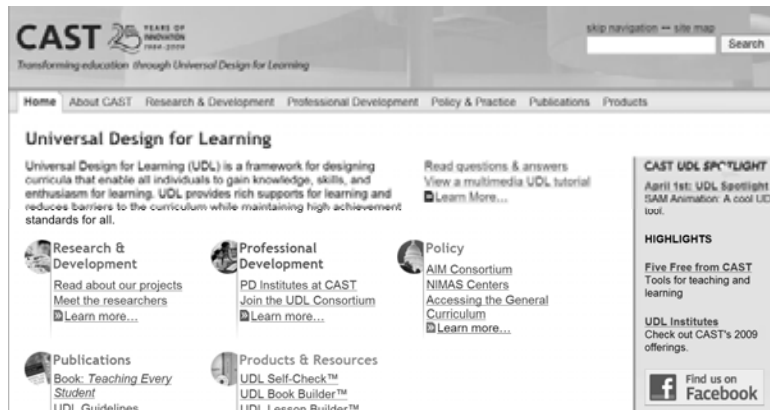
Linking Assessment-Teaching-Learning
Least Restrictive Environment (LRE)

- Framework for consideration of each student's needs in relationship to his/her experience in the general education curriculum
- Responsibility for each student's progress which requires the entire school staff for all students

8

Universal Design for Learning=Preparing for All Learners

Center for Applied Special Technology: www.cast.org



University of Colorado

<http://accessproject.colostate.edu/udl/video/video.cfm>

Teaching in a Standards
Aligned System:
***Linking
Assessment-Teaching-Learning***

Traditional vs. Standards Aligned



Standards, Anchors & Curriculum Frameworks Big Ideas

- Framework for teaching the content
- Point of focus to guide instructional planning
- Educational sequence to learning
- Create expectations for student outcomes
- State WHAT to teach, not how to teach
- Provide instructional accountability



Standards frame our instruction,
anchors provide focus

11

Research Standards Aligned Education

Snow-Renner, R. & Lauer, P. 2005

- 621 studies published & reviewed since 1995
- 113 - scientifically researched

Results:

- Positive influence on student achievement
- Positive influence on instruction practice and choice of scientifically based instruction models
- Higher accountability for progress through data (student and administrators classroom walk thru)

http://www.mcrel.org/PDF/Standards/5051IR_Standards_synthesis.pdf

12

PSSA Shows Continued Growth in Proficiency (8/6/2008)



Evidence:

- 479 SD majority on grade level
- Only 375 in 2000-2001
- # below basic is shrinking 38%
- # advanced grown by 88%

How Do Standards, Anchors and Curriculum Frameworks Big Ideas Benefit Students with Disabilities?



- Equitable access and **progress** in the general education curriculum
- Standards aligned accountability
 - Goals and benchmarks linked to standards
 - Statewide assessments based on standards
- Educational benefit rather than compliance

Standards, Anchors and Curriculum Frameworks Big Ideas in the IEP ensures...

- Student need and state standards are tied together
- Instruction is aligned with grade level content/standards
- Special and general educators collaborate and plan instruction using a common language

15

Incorporating Standards, Anchors and Curriculum Frameworks Big Ideas into the IEP

- Improves consistency of instruction across classrooms, schools, districts and the state
- Improves targeted teaching and learning
- Ensures that all students are assessed against state standards

16

Activity:
Traditional VS Standards Aligned Classrooms

Directions:

Using the ***Understanding Differences*** handout, write **TC** if the descriptor illustrates a traditional classroom; write **SAC** if the descriptor illustrates a standards aligned classroom.

17

Trademarks of a Standards, Anchors and Curriculum Frameworks Big Ideas Classroom

1. Teachers pretest based on standards
2. Teachers state standards in student friendly language
3. Students are able to state how their learning relates to the standards
4. Student and parents know the level and tools used to measure proficiency required to meet these standards

18

18

Trademarks of a Standards, Anchors and Curriculum Frameworks Big Ideas Classroom

5. Students are provided multiple opportunities to learn
6. Assignments reflect an integration of facts, content and strategies
7. Each assignment is a meaningful assessment of the standards



Standards aligned classrooms look different. How?

19

Traditional vs. Standards Aligned Practices

Traditional

1. Select a topic from the curriculum
2. Provide instruction
3. Assess
4. Grade
5. Move on to new topic

Standards Aligned

1. Assess on standards
2. Select topic from assessment
3. Provide multiple learning opportunities
4. Assess on standards
5. Re-teach, give feedback, or move to next standard

Adapted from : Madfes, T.J. & Muench, A (200) Learning from Assessment. San Francisco: WestEd

20

Standards Aligned Instructional Planning Essential Questions

1. How will I know that students have met the standard?
2. What will the evidence be?
3. What benchmark assessment tasks will enable me to determine to which extend the content has been mastered?
4. What benchmark assessments or tasks will be used to create data that will drive instruction, lessons and assignments?

21

21

Standards Aligned Instructional Planning Essential Questions, cont.

5. What will learning the standard look like in the instructional process?
6. How many learning opportunities and what are the varied ways they will be provided?
7. What connections will be made to other content areas, technology, differentiated instruction, homework?

22

Standards Aligned Terminology

Terminology Activity

- Refer to handout, ***Standards Aligned Terminology***
- Rate your understanding of the terms...
 - 1 = no understanding
 - 2 = limited understanding
 - 3 = thorough understanding(The terms and descriptors are in groups of six)
- If an item is rated as 2 or 3, find a match with a descriptor and place its # in the given box

23

Teaching in a Standards
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PA Standards Aligned System

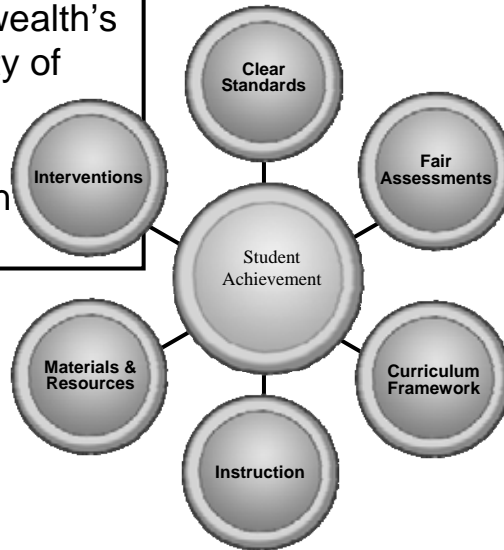
<http://www.pde.state.pa.us/>



Standards Aligned System

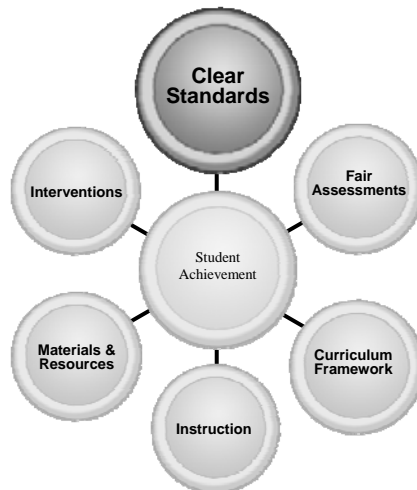
Commonwealth's
Community of
Educators

- ★ Focus
- ★ Direction
- ★ Support



25

Standards Aligned System



Clear Standards

- Clear, high standards that establish what all students need to know and be able to accomplish
- Standard Enhancement Project- Standards per grade in Reading/Writing/Speaking/Listening, Math, Social Studies, and Science
- Anchors and Eligible Content

PA Academic Standards

Pennsylvania's public schools shall teach, challenge and support every student to realize his or her maximum potential and to acquire the knowledge and skills needed to:

27

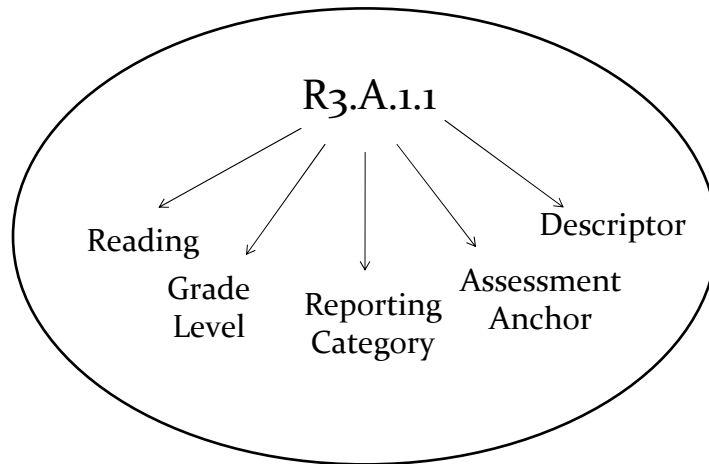
Reporting Categories-Reading

Reporting Category*	Standard(s)
A. Comprehension and Reading Skills	1.1 Learning to read independently 1.2 Reading critically in all content areas
B. Interpretation and Analysis of Fiction and Nonfiction Text	1.1 Learning to read independently. 1.2 Reading critically in all content area's. 1.3 Reading, analyzing, and interpreting literature.

*PSSA scores will be reported at this level only.
Scores will not be further broken down.

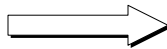
28

Assessment Anchor Coding



29

Standard



Anchor

Standard: 1.3. Reading, Analyzing and Interpreting Literature

1.3.5. GRADE 5

- A. Read and understand works of literature.
- B. Compare the use of literary elements within and among texts including characters, setting, plot, theme and point of view

R5.B Interpretation and Analysis of Literature

ASSESSMENT ANCHOR

R5.B.1 Describe and interpret literary elements within and among texts.

R5.B.1.1 Compare characters, settings and plots

Reference:
1.3.5.B

R5.B.1.1.1 Items may ask the students to compare or explain relationships among the following:

Characters: main, supporting, actions, motives and emotions/feelings;

Settings: where or when the story takes place, a detail that describes the setting, or information from the text that suggests a setting;

Plots: conflict, rising action, climax and resolution.

Note: Items may ask students to utilize story maps or Venn diagrams to show sequence, cause & effect, and/or comparison/contrast.

30

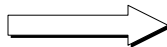
Reporting Categories-Math

Reporting Category*	Standard(s)
A. Numbers and Operations	2.1 Numbers, number systems, and number relationships 2.2 Computation and estimation
B. Measurement	2.3 Measurement and estimation
C. Geometry	2.9 Geometry 2.10 Trigonometry
D. Algebraic Concepts	2.8 Algebra and functions
E. Data Analysis and Probability	2.6 Statistics and data analysis 2.7 Probability and predictions

*Mathematical reasoning and connections, Mathematical problem solving and communications, and Calculus are not specifically identified, but could be embedded across all reporting categories

31

Standard



Anchor

Standard: 2.1. Numbers, Number Systems and Number Relationships

2.1.8. GRADE 8

- A. Represent and use numbers in equivalent forms (e.g., integers, fractions, decimals, percents, exponents, scientific notation, square roots).
- B. Simplify numerical expressions involving exponents, scientific notation and using order of operations.

M8.A Numbers and Operations

Assessment Anchor

M8.A.1 Demonstrate an understanding of numbers, ways of representing numbers, relationships among numbers, and number systems.

ELIGIBLE CONTENT

M8.A.1.1 Represent numbers in equivalent forms.
Reference:
2.1.8.A, 2.1.8.B

M8.A.1.1.1 Convert fractions, decimals and/or percents to equivalent forms (i.e., $1/3 = 33\frac{1}{3}\%$ = .333).

M8.A.1.1.2 Use scientific notation or exponential forms to express numbers.

M8.A.1.1.3 Find the square or cube of a whole number and/or the square root of a perfect square (without a calculator).

Alternate Standards

<http://www.pasaassessment.org>

PA Alternate Achievement Standards/Anchors

- Reading
- Math
- Science
- Reading Content Areas

** For students with severe cognitive disabilities who take the PASA*

33

1.1.3 Learning to Read Independently

STANDARD: 1.1.3 E. Acquire a reading vocabulary by identifying and correctly using words (e.g. antonyms, synonyms, categories of words). Use a dictionary when appropriate.

ALTERNATE STANDARD: 1.1.3 B.2: Demonstrate an understanding of meaning of objects by showing how they are used

PDE/GradeLevel Performance Level Descriptors

http://www.pde.state.pa.us/a_and_t/cwp/view.asp?a=108&Q=73314&a_and_tNav=av=680&a_and_tNav=

The screenshot shows the Pennsylvania Department of Education website. The header includes the state logo, a search bar, and navigation links for PA State Agencies and Online Services. The main navigation bar lists Home, Pre K-12, Higher/Adult Education, Teaching, Libraries, Dept Info, and Newsroom. The left sidebar contains a 'Learn About' section with links to Accountability System, Assessment Anchors, Assessment Anchor Toolkit, Calendar of Statewide Testing, Interpretation Aids, PA Value Added Assessment System (PVAAS), PSSA Test Security Procedure, PSSA Results, Resource Materials, Technical Analysis, Testing Accommodations, Test Administration, and Standards. The main content area is titled 'Resource Materials' and includes links to the 2008-2009 Assessment Handbook, Pennsylvania System of School Assessment Performance Level Descriptors, and Pennsylvania System of School Assessment Performance Level Cut Scores. A section titled '2008-2009 PSSA "Getting Ready" NEW!' describes a PowerPoint presentation used during the December 3-5, 2008 'Getting Ready' for the PSSA Illuminate Training Sessions. A link to the recording of the December 3rd session follows the PowerPoint.

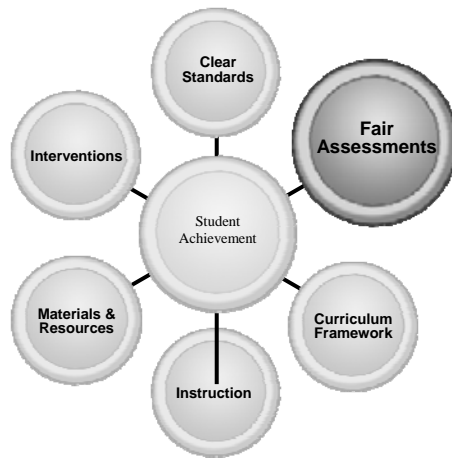
35

Sample of 6th grade math student performing at the *Proficient Level*:

- A. writes or recognizes percents, fractions and decimals in equivalent forms; uses divisibility tests and determines factors and multiples of numbers; solves multi-step problems with fractions, decimals and whole numbers; uses estimation to solve problems.
- B. determines and compares elapsed times in problem-solving situations; uses a protractor to measure angles; determines the perimeters of polygons.

36

Standards Aligned System



Fair Assessments

Fair assessments aligned to the standards, anchors and curriculum frameworks big ideas

Four Types:

- Summative
- Formative
- Benchmark
- Diagnostic

37

Assessment in a Standards, Anchors, Curriculum Frameworks Big Ideas System:

Assessment is:

- Multifaceted
- Many forms --(Summative, Formative, Benchmark, Diagnostic)
- Includes Monitoring of Progress in each area
- Frequent
- Variety of assessment types
- Results in modifying instruction

38

Summative Assessments

- Seek to make an overall judgment of progress at the end of a defined period of instruction
- Occur at the end of a school level, grade, or course
- Are administered at certain grades for purposes of state or local accountability

39

Summative Assessments

- Considered high-stakes assessments
- Results are often used in conjunction with No Child Left Behind (NCLB) and Adequate Yearly Progress (AYP)
- Designed to produce clear data on the student's accomplishments at key points in his or her academic career
- Examples of summative assessment: PSSA, Terra Nova

40

Benchmark Assessments

- Benchmark assessments answer the question **what?**
 - What standards have the students achieved?
 - What standards have not yet been met?
 - What standards are not being addressed?
- Benchmark assessments are an efficient measure for predicting success on state achievement tests, as well as for screening students for possible placement in remediation programs
- Benchmark assessments provide accountability at the classroom level
- Examples of benchmark assessments are: 4Sight, DIBELS

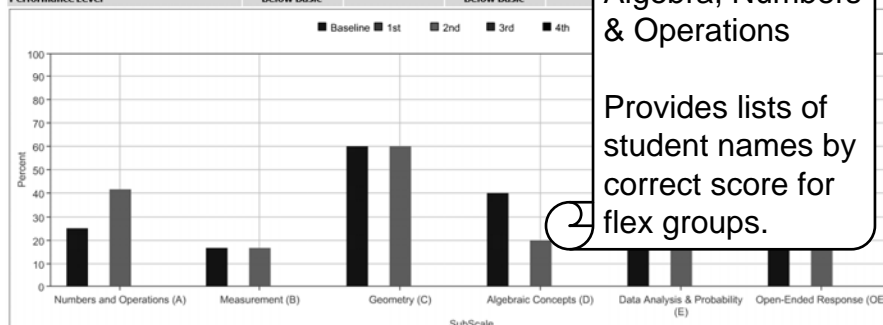
41

4Sight Benchmark Data

Vast School 7th
Grade

Elementary Center 2008/2009 - 4Sight Math Results (03/13/2009)

	Baseline	1st	2nd	3rd	4th
Score	35.71		42.86		
Numbers and Operations (A)	25.00		41.67		
Measurement (B)	16.67		16.67		
Geometry (C)	60.00		60.00		
Algebraic Concepts (D)	40.00		20.00		
Data Analysis & Probability (E)	66.67		66.67		
Open-Ended Response (OE)	25.00		50.00		
Performance Level	Below Basic		Below Basic		



Useful Information

Strengths in Data Analysis and Geometry

Needs

Measurement, Algebra, Numbers & Operations

Provides lists of student names by correct score for flex groups.

4Sight Item Analysis

Useful Information

An analysis of 7th grade reading 4Sight benchmark assessment indicates lesson plans needed to apply affixes, and explain author's purpose.

43

PA Demo 2225 2006/2007 Item Analysis by Subscale (06/05/2008)			
4Sight Grade 7 Third Edition Test 1			
Comprehension & Reading Skills (A)			
tence from the passage.			
files the leaves."			
of the word ruffles is			
	Respondents	# Picked	%
ms.	37	1	2.70%
ules.	37	22	59.46%
ttles.	37	7	18.92%
es.	37	7	18.92%
om this passage is that			
	Respondents	# Picked	%
right worked for an architecture firm in Chicago.	37	4	10.81%
right worked for Joseph Lyman Silsbee.	37	2	5.41%
right designed buildings with nature in mind.	37	30	81.08%
right was born long ago in Wisconsin.	37	1	2.70%
ils of Wright's different			
	Respondents	# Picked	%
A <input type="checkbox"/> tastes in hobbies.	37	2	5.41%
B <input type="checkbox"/> style of writing.	37	1	2.70%
C <input type="checkbox"/> professions.	37	2	5.41%
D <input checked="" type="checkbox"/> architectural ideas.	37	32	86.49%

Formative Assessments

Black and William (1998) define formative assessment broadly to include instructional formats that teachers utilize in order to...

get information that when used diagnostically alter instructional practices and have a direct impact on student learning and achievement

44

Formative Assessments

- May consist of:
 - formal instruments
 - informal observations using checklists or other types of documentation
- Must consider how to utilize results...
 - shape teaching?
 - guide instruction and learning?

45

Formative Assessments

- Assessments are formative when the information is used to...
 - adapt instructional practices
 - meet individual student needs
 - provide individual students corrective feedback
 - "reach" set goals and targets

46

Formative Assessments

- Are classroom and/or curriculum-based
- Allow teachers to monitor and adjust their instructional techniques
- Monitor student gains toward reaching goals
- Are developed to meet the individual needs of their students and attainment of their goals

47

Formative Assessments

Effective teachers seamlessly integrate formative assessment strategies into their daily instructional routines...

- Questioning strategies
- Analysis of student work based on set rubrics = standards, including homework and quizzes
- Notebook checks, including specific criteria
- Role plays/skits, human timelines

48



Formative Assessments

When teachers know how students are progressing, they are able to use this information to make necessary instructional adjustments... Re-teach? Opportunities for practice? More___? Less___?

Look at the previous two slides. Circle which formative assessments you typically use throughout your instructional process. Draw a square around those you may try to incorporate in your teaching repertoire.

49



How can we improve our formative assessments?

50

Activity: Write a Test Question

Bloom's Taxonomy

- Knowledge
- Comprehension
- Application
- Analysis
- Synthesis
- Evaluation



51

Improved Assessment Items According to Standards, Anchors and Big Ideas

The differences in assessment in the SAS include:

- Use of explicit language from ***standards, anchors and curriculum frameworks big ideas*** in the question or item
- Specific assessment items in higher order question types
 - Enhanced multiple choice items
 - Essay items-restricted and open ended
 - Performance Items-to include 5 item checklist
 - Document -based or visual interpretation items

52

How to improve assessment items:

Formative

Diagnostic Assessments

- The question that is answered is **why?**
 - Determine the why - by breaking benchmarks down into fundamental skills and analyzing patterns of achievement across multiple measures
 - Why are there errors?
 - Why are there miscues?
- Diagnostic assessments suggest instructional strategies that will help individual students and enables the teacher to adjust the curriculum
- Examples are: Diagnostic Assessment of Reading (DAR), Key Math

55

Diagnostic Individual Data

Information about Sherry:

Sherry was given a diagnostic test on phonological processing that showed below average scores for her age and very poor for rapid naming.

56

CTOPP Profile/Examiner Record Booklet
Comprehensive Test of Phonological Processing for Ages 7 through 24

Section I. Identifying Information

Subject: Sherry Sherry Gender: Female Grade: 2nd State: TX
 Date Tested: 8/8 Month: 8 Year: 12
 Examiner's Name: Sherry Sherry Date of Birth: 9/6 Age: 12
 Examiner's Title: Reading Specialist

Section II. Record of Scores

Subtests	Raw Score	Age	Grade	Sex	Raw Score	Composites		Range of Scores	Composite Score
						Score	Percentile		
1. Phon (20)	12	8	2	F	12	7	9	7-11	21
2. Blending Words (20)	14	8	2	F	14	8	9	7-11	21
3. Memory for Digits (40)	31	8	2	F	31	8	9	7-11	21
4. Rapid Digit Naming (40)	21	8	2	F	21	8	9	7-11	21
5. Nonword Repetition (40)	14	8	2	F	14	8	9	7-11	21
6. Rapid Letter Naming (20)	12	8	2	F	12	7	9	7-11	21
7. Rapid Color Naming (20)	12	8	2	F	12	7	9	7-11	21
8. Rapid Object Naming (20)	12	8	2	F	12	7	9	7-11	21
9. Rapid Word Naming (20)	12	8	2	F	12	7	9	7-11	21
10. Rapid Naming (20)	12	8	2	F	12	7	9	7-11	21
11. Rapid Naming (20)	12	8	2	F	12	7	9	7-11	21
12. Rapid Naming (20)	12	8	2	F	12	7	9	7-11	21
13. Rapid Naming (20)	12	8	2	F	12	7	9	7-11	21
14. Rapid Naming (20)	12	8	2	F	12	7	9	7-11	21
15. Rapid Naming (20)	12	8	2	F	12	7	9	7-11	21
16. Rapid Naming (20)	12	8	2	F	12	7	9	7-11	21
17. Rapid Naming (20)	12	8	2	F	12	7	9	7-11	21
18. Rapid Naming (20)	12	8	2	F	12	7	9	7-11	21
19. Rapid Naming (20)	12	8	2	F	12	7	9	7-11	21
20. Rapid Naming (20)	12	8	2	F	12	7	9	7-11	21

Section III. Profile of Scores

Standard scores for each subtest are shown in the table below. The table also shows the range of scores for each subtest and the composite score for each subtest. The table also shows the range of scores for each subtest and the composite score for each subtest.

Standards Aligned Assessment Check For Understanding



Think of a DRIVING analogy...

Daily or weekly driving practice with feedback from a parent is a _____ assessment.

The final driving test (dept. of transportation) is a _____ assessment.

Summative ~ Formative ~ Benchmark ~ Diagnostic

57



Monitoring Progress in a Standards Aligned System

58

Monitoring Progress in a Standards Aligned System

- The purpose of measuring progress in a standards-aligned system is to determine progress in the general education curriculum
- Progress in the general education curriculum is determined according to progress in mastery of subject matter content

Monitoring Progress in a Standards Aligned System

1. Summative Data
 - Standardized tests given to whole school district
 - PSSA/PASA
2. Benchmark Data
 - Gives 3-4 tests during the school year of progress toward the standards
 - Standardized tests given to whole grade levels
 - 4Sight, Aimsweb, DIBELS

Monitoring Progress in a Standards Aligned System

61

3. Formative Data

- ✓ Daily data collection on progress in the standards
- ✓ Midterms, finals, skills tests, unit and theme tests
- ✓ Portfolios, projects, tests, quizzes, homework
- ✓ Class participation, observation, rubrics
- ✓ Standards/anchors mastery checklists

4. Diagnostic Data

- standardized - subject specific - individualized test

61

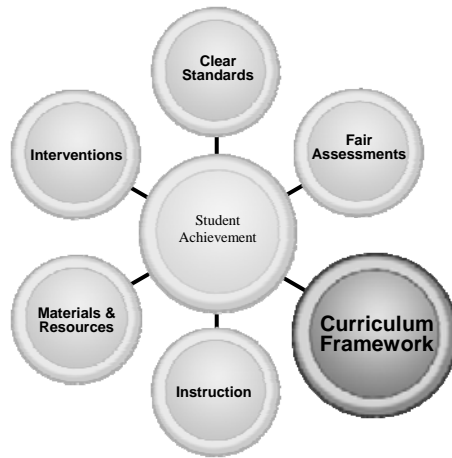
Monitoring Progress in a Standards Aligned System

62

- Progress in a standards-aligned system involves:
 - Numerical data
 - Percentage data
 - Descriptive data
- Progress involves teachers making judgments based on data
- All information is obtained and all judgments are made with the ***standards, anchors and curriculum frameworks big ideas*** as the starting and ending point

62

Standards Aligned System



Curriculum Framework

A framework specifying **Big Ideas, Concepts, and Competencies** in each subject area at each grade level

Teaching in a Standards
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Linking
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PA Standards Aligned System

Curriculum Framework

◆ Big Ideas ◆ Concepts ◆ Competencies
◆ Essential Questions ◆ Vocabulary ◆ Exemplars



Curriculum Frameworks, Anchors and Standards Relationships

- Big Ideas: Declarative statements that describe concepts that transcend grade levels. Big Ideas are essential to provide focus on specific content for all students.
- Concepts: Describe what students should know, key knowledge, as a result of this instruction, specific to grade level.

Curriculum Frameworks, Anchors and Standards Relationships

- Competencies: Describe what students should be able to do, key skills, as a result of this instruction, specific to grade level.
- Vocabulary: Key terminology linked to the standards, big Ideas, concepts and competencies in a specific content area and grade level.

Curriculum Frameworks, Anchors and Standards Relationships

- Exemplars: Exemplars are performance tasks and can be used for assessment, instruction as well as professional development.
- Exemplars: Provide educators with a concrete example of assessing students' understanding of the big ideas, concepts and competencies.

67

Curriculum Frameworks, Anchors and Standards Relationships

Moving from using the SAS as a general construct to using its content for actual instruction by:

- Observing how the big ideas and competencies from the curriculum frameworks for a specific grade and subject provide for an integrated, but yet specific, approach to instruction
- By providing a more conceptual framework for instruction that allows teaching and learning of more than one particular item of eligible content

Curriculum Frameworks, Anchors and Standards Relationships

By using the big ideas and competencies as a framework for working with the anchors and standards, instruction becomes

- More cohesive
- More unit-based
- Less fragmented
- More focused on important concepts
- More focused on key competencies across subjects and grades

70

Let's Look at SAS on Ed Hub

- www.pde.state.pa.us

- Math: Algebra I and Grade 2

Print

Standard(s) Aligned System

Subject: Math
Grade: 6

Last Modified Date:
03/14/09 11:40 AM

Clear Standards	Fair Assessments	Curriculum Framework	Instruction	Materials and Resources	Interventions
<input type="checkbox"/> Big Ideas					
<input type="checkbox"/> Concepts					
<input type="checkbox"/> Competencies					
<input type="checkbox"/> Essential Questions					
<input type="checkbox"/> Vocabulary					
<input type="checkbox"/> Exemplars					

What Should I Know about SAS?

- What are the six elements of PA Standards Aligned System?

1. Clear Standards 2. Fair Assessments 3. Curriculum Framework
4. Instruction 5. Materials & Resources 6. Interventions

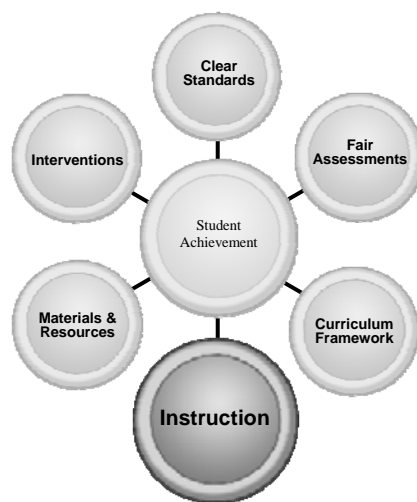
- What are the kinds of things you can find on the web in the curriculum framework to assist you with a standards aligned instruction?

✦ Big Ideas ✦ Concepts ✦ Competencies
✦ Essential Questions ✦ Vocabulary ✦ Exemplars



71

Standards Aligned System



Instruction

Aligning instruction with standards involves identifying strategies that are best suited to help students achieve the expected performance.

Teaching in a Standards
Aligned System:
Linking
Assessment-Teaching-Learning

Effective Instruction



EFFECTIVE INSTRUCTION EMPOWERS ALL STUDENTS TO:

- ✓ Expect to be successful
- ✓ Actively use prior knowledge and skills to gain new knowledge
- ✓ Actively work to organize knowledge
- ✓ Possess a broad array of academic strategies
- ✓ Possess good social judgment

Instruction That Works
Research Based Principles
Ten Effective Teaching Principles
Edwin Ellis and L. Worthington, 1994

1. Engaged Time
2. Success Rate
3. Content Coverage
4. Opportunity to Learn
5. Grouping for Instruction
6. Scaffolded Instruction
7. Addressing Forms of Knowledge
8. Activating and Organizing Knowledge
9. Teaching Strategically
10. Making Instruction Explicit

75

Instruction That Works
Research Based Principles

- I. Objectives
- II. Standards
- III. Anticipatory Set
- IV. Teaching involves:
 - ✓ Input
 - ✓ Modeling
 - ✓ Check for understanding
- V. Guided practice and monitoring
- VI. Closure
- VII. Independent Practice

Direct Instruction Principles
Madeline Hunter

76

Instruction That Works Research Based Principles

Classroom Instruction That Works!
Instructional Strategies that Effect Student Achievement

Marzano, Pickering, Pollack, 2005

- Identifying Similarities and Differences
- Summarizing and Notetaking
- Reinforcing Effort and Providing Recognition
- Homework and Practice
- Nonlinguistic Representations
- Cooperative Learning
- Setting Objectives and Providing Feedback
- Generating and Testing Hypotheses
- Cues, Questions and Advance Organizers

77

Instruction That Works Research Based Principles

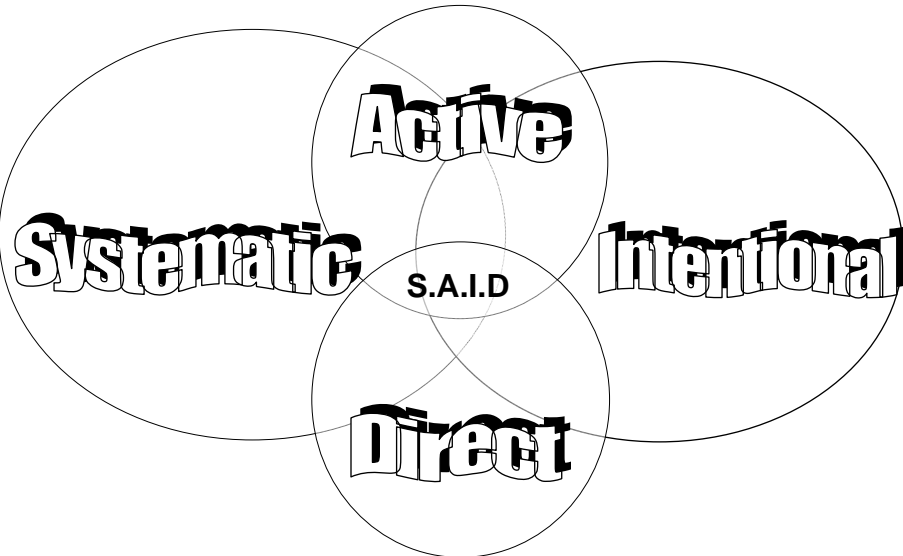
*Toward Successful Inclusion of
Students with Disabilities*

Kame'enui, Carnine, Dixon, Simmons & Coyne, 2002

- ☐ Big Ideas/Conspicuous Strategies
- ☐ Mediated Scaffolding/Strategic Integration
- ☐ Primed Background Knowledge/Judicious Review

78

Effective Instruction is:






79

Teaching in a Standards
Aligned System:
Linking
Assessment-Teaching-Learning

Effective Instruction is...
Explicit Instruction

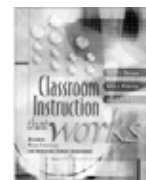


Factors effecting student achievement

Leadership	Factor	Example
	School 	Guaranteed and Viable Curriculum Challenging Goals and Effective Feedback Parent and Community Involvement Safe and Orderly Environment Collegiality and Professionalism
	Teacher 	<u>Instructional Strategies</u> Classroom Management Classroom Curriculum Design
	Student 	Home Atmosphere Learned Intelligence and Background Knowledge Motivation

The Research

- Meta-analyses research combined the results from many studies to determine the average effect of a given technique.
- *Classroom Instruction that Works* identifies those instructional strategies that have a high probability of enhancing student achievement.



Where to begin...

Planning Targets of Learning

4 questions to address:



- What knowledge will students be learning?
- What will be done to help students acquire and integrate knowledge?
- What will be done to help students practice, review, and apply this knowledge?
- How will you know if students have learned this knowledge?

The Effects...

Nine Strategies	Effect Size	Percentile Gain
Setting objectives and providing feedback	.61	23
Questions, cues, and advance organizers	.59	22
Nonlinguistic representation	.75	27
Summarizing and note taking	1.00	34
Identifying similarities and differences	1.61	45
Generating and testing hypotheses	.61	23
Cooperative learning	.73	27
Homework and practice	.77	28
Reinforcing effort and providing recognition	.80	29

Setting Objectives and Providing Feedback

When planning for instruction, two categories of knowledge to consider are:

- Information
- Skills and Processes



Explicit Instruction

Essential components:

- **Instructional design**
 - content and strategies taught
- **Instructional delivery**
 - group instruction with high level of teacher and student interactions

Instructional Design

- Big Ideas
- Concepts
- Competencies
- Essential Questions
- Vocabulary
- Exemplars

Standards Aligned System

87

Sample of Instructional Design

- **Standard(s):**
 - 2.5 Problem solving and communication
 - 2.4 Reasoning and Connections
- **Big Idea:** Objects can be transformed in an infinite number of ways. Transformations can be described and analyzed mathematically.
- **Concept:** Area and Volume

88

Instructional Design, cont.

- **Competencies:** Characteristics of 2d and 3d shapes including measures of area and volumes by exploring, solving and interpreting real world problems.
- **Essential Question:** How can we use the relationship between area and volume to help us draw, construct, model, and represent real situations and/or solve problems of area and volume?

89

Instructional Design, cont.

- **Vocabulary:**
 - Customary System
 - Expression
 - Equivalent
 - Models
- **Content:** Measuring 2 and 3-d objects to find equivalent items.
- **Strategies:** Students will work in cooperative groups to measure 2 and 3-d objects to find equivalent items.

90

Instructional Delivery

- Explicit Instruction
- Active Engagement
- Scaffolding
- Metacognition

Teaching Matters

www.pde.state.pa.u

91

SAID

Explicit Instruction Outline

• Standard/Objective ☒ Check

• Preview/Review ☒ Check

• Explain-Model-Demonstrate ☒ Check
• Metacognition & Scaffolding

• Guided Practice ☒ Check

• Closure ☒ Check
• Independent Practice

● Assessment ● Judicious Review ● Mastery

Learning Standard/Objective

- Describes how a standard or a component of a standard will be addressed during the lesson
 - Not just content standard itself
- Specifies what the students will be asked to do during independent work
- Enables students to discuss how their learning relates to the standard

93

Learning Standard/Objective

I do

Standard: Science Grade 4 **4.3.4.C**: Understand that the elements

Student language:

Ar

“I am learning about how plants and animals depend on one another. I am learning new words that help explain how they are the same and different.”

St:

Ar

- Identify the meaning of content-specific words used in text.
- Interpret the meaning of content-specific words used in text.

Learning Objective: Given a list of animals and plants, the students will identify herbivores, carnivores, omnivores, decomposers, producers, and consumers.

94

Writing Learning Standard/Objective

Standard Grade 8 Math 2.6.3.B

We do

- Formulate and answer questions based on data shown on

Student talk:

I am taking the numbers from everyone's shoe size and putting them on a bar graph. I am able to show the trend of shoe sizes from my classroom. I can make questions and answers from my bar graph.

Students will collect each other's shoe sizes and do a bar graph.

Obj. From a table of sample data,

SWBAT _____

95

Writing Learning Standard/Objective

Grade 4 Science 3.4.4.D

You do

- Describe the composition and structure of the universe and the earth's place in it--Explain and illustrate the causes of seasonal changes.

Anchor

- Describe Earth's relationship to the sun and the moon.

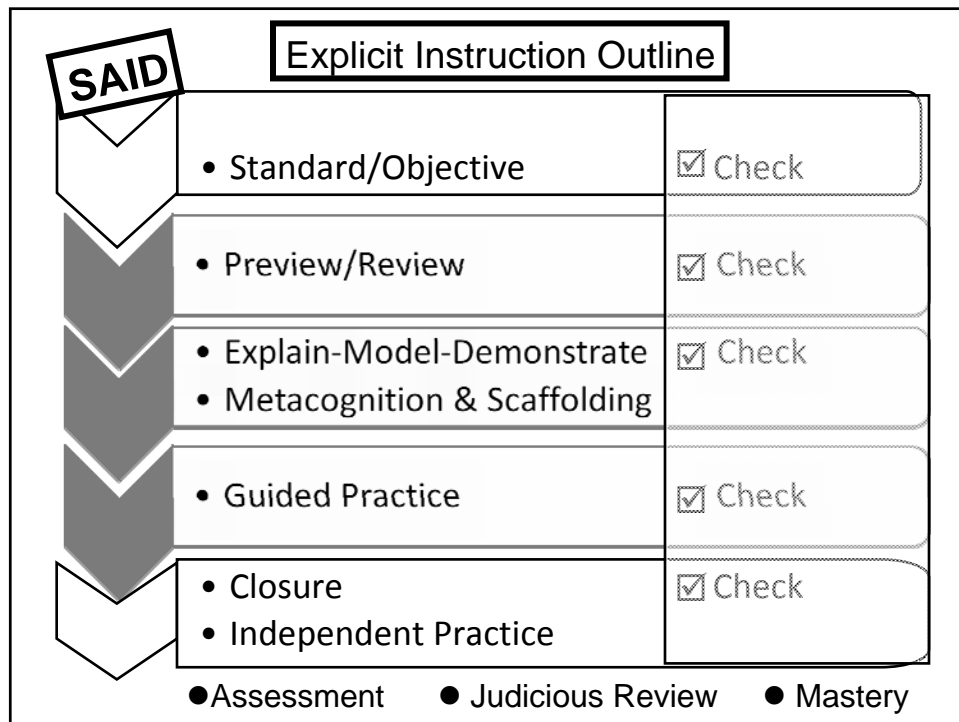
Anchor Skills

- Describe the causes of seasonal change as it relates to the rotation of the Earth
- Describe the causes of seasonal change as it relates to the tilt of the Earth's axis

Learning Objective:

Write an objective for the teacher and in student language.

96



Checks for Understanding

- Partner Response
- Group Responses
 - Choral
 - Random Reporting
 - Response Cards
- Think Time
- Go Kinetic
- Popsicle Stick
- Time to Find the Answer
- Paraphrase
- Sentence Starter



Checks for Understanding...

- Interspersed continually throughout lesson
- Verify if students are understanding objectives, explanations, guided practice, etc.
- Verify if students understand directions for activity
- Ensure that students able to do task successfully before given as independent practice

How many checkpoints in one lesson?

99

Strategies to Check for Understanding Active Student Responses

1. Partner Responses
2. Group Responding
 - Choral Responding
 - Random Reporter
 - Response Cards



100

Partner Responses

- No one is passive
- Engages struggling learners
- Should be short
- Provide think time first



101

Partner Responses

- Teacher assigns partners
 - Provide a label/role “1’s tell 2’s”
 - Provide a model or sentence frame for responding
 - Structure prompts using Bloom’s Taxonomy

My idea/observation/experience is similar to.....

Asalready pointed out, it seems like.....

As already mentioned.....,but I would like to add that.....

102

Think/Write

How would you complete the following:

One way to provide for quick partner responses is to _____.

1. With a person near you, share your sentence stem and thoughts.
2. Do not explain or add.
3. Please raise your hand when partner work is completed.



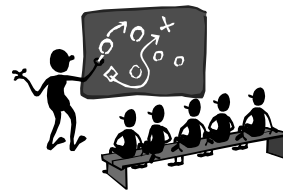
103

Group Responses

Benefits:

- ✓ Increased engagement and learning
- ✓ Greater on-task behavior
- ✓ Immediate feedback/assessment for the teacher

- Choral Responding
- Random Reporter
- Response Cards



104

Choral Responding

1. All students in the group respond orally, in unison to a question or item presented by the teacher
2. Answers are short or the same
3. Provide clear directions and model one or two trials
4. Provide think time
5. Use a clear signal or cue to indicate when students are to respond
6. Maintain a lively pace

105

Group Responses through Cooperative Learning

Cooperative learning is a powerful research-based strategy that effectively engages students in learning

- Groups work best if they are not grouped by ability (-23%)
- Students put into groups/pairs of two show a 6% gain in knowledge
- When put into groups of three to four, there is a 9% gain
- Groups of five to seven show a loss (-1%)

106

Cooperative Learning

Done

- Students sit together
- One student does the work
- Completed in one activity
- No team spirit

Done Right

- Explicitly teaches social skills of how to work together
- Individual accountability within the team
- Long term work
- Team members work collaboratively for mastery of information

107

Why use cooperative learning?

- Academic Standards and Anchors have both a “know” and a “do” component
- If students are to master standards, they must have more opportunities to practice both the knowing and the doing
- The “doing” cannot be assumed

108

Random Reporter Response

- Team Cooperation Goals
- Practice Active Listening
- Help and Encourage Others
- Everyone Participates
- Explain your ideas and tell why
- Everyone completes the task

Success for All Foundation, 2008

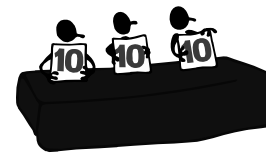


How?

- Group students into 4
- Give each member a number from 1-4
- Pose a question and provide think time
- Instruct the team to discuss and agree on the answer
- Call upon a team and a number to respond for the team

109

Response Cards



Response Cards are cards, signs, or items which are simultaneously held up by all students in the class to display their response to a question or problem.

—Preprinted

- Yes/no, true/false, pinch cards, actual content words

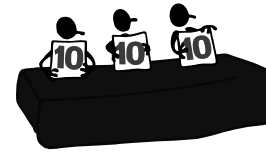
—Write-on

- Small laminated boards, plastic plates, dry erase)

—Blank (use colors or shapes)

110

Response Cards



Consider this ...

If response cards were used instead of hand raising for just 30 minutes per day, each student would make more than 3,700 additional academic responses during the school year!

111

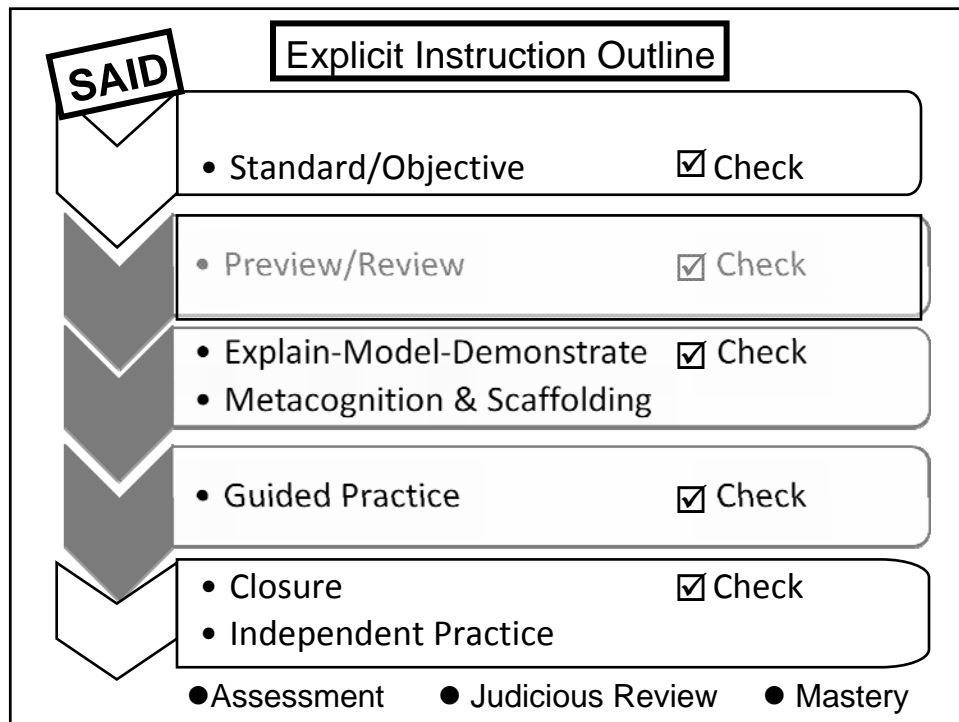
Activity: Group Responses

1. Turn over your VIP paper and fold in half longways.
(Pinch card)
2. Print a LARGE capital A B C in vertical fashion.

A. Random Reporter B. Response Cards C. Choral Responses
--

3. Listen to the question.
4. Choose/pinch A B or C for your response.

112



Preview or Review

- **Preview** new material to be presented by activating prior knowledge
 - Connections to info help students to become familiar with the content that will be taught
 - Brainstorming of info helps students to become familiar with the content that will be taught
- **Review** material presented previously that relates with the lesson

Example

Preview or Review?

A teacher displays a transparency with 2 columns: Plants and Animals. She asks the students to close their eyes and think of all the food they have eaten in the last 24 hours. She calls on students to tell her which foods were from plants and which foods were from animals. After looking at the list, the teacher explains that people eat both plants and animals. Then, students are asked to list a food they have eaten and to identify whether it was from a plant or animal. They share the list with a partner.

115

Preview/Review Sample Vocabulary Knowledge Rating

Level of Word Knowledge

Students use a finger vote 1-5

- 1) I never saw it before.
- 2) I've heard of it, but don't know what it means.
- 3) I recognize it in context. It has something to do with _____.
- 4) I know it well (could give examples, synonyms).
- 5) I use it regularly (expressive vocabulary).

Feldman, 2007.

116

Preview/Review

Activating prior knowledge:

See Handout

- Before reading
 - How do I activate my students' prior knowledge?
- During reading
 - How can I teach students to use their prior knowledge during reading?
- After reading
 - What do I do after completing the reading selection?

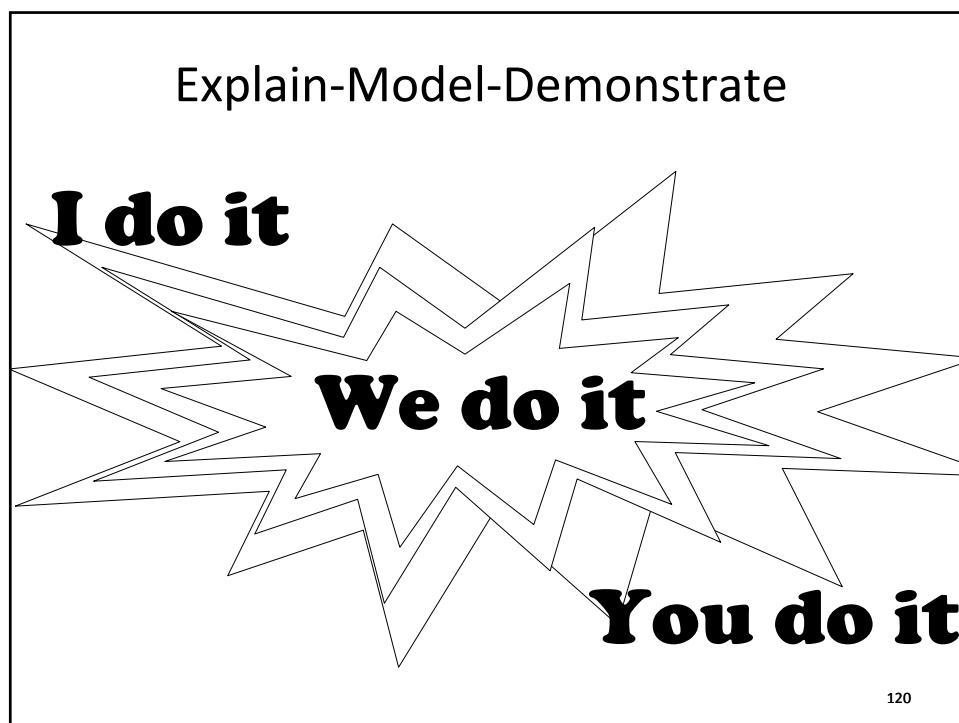
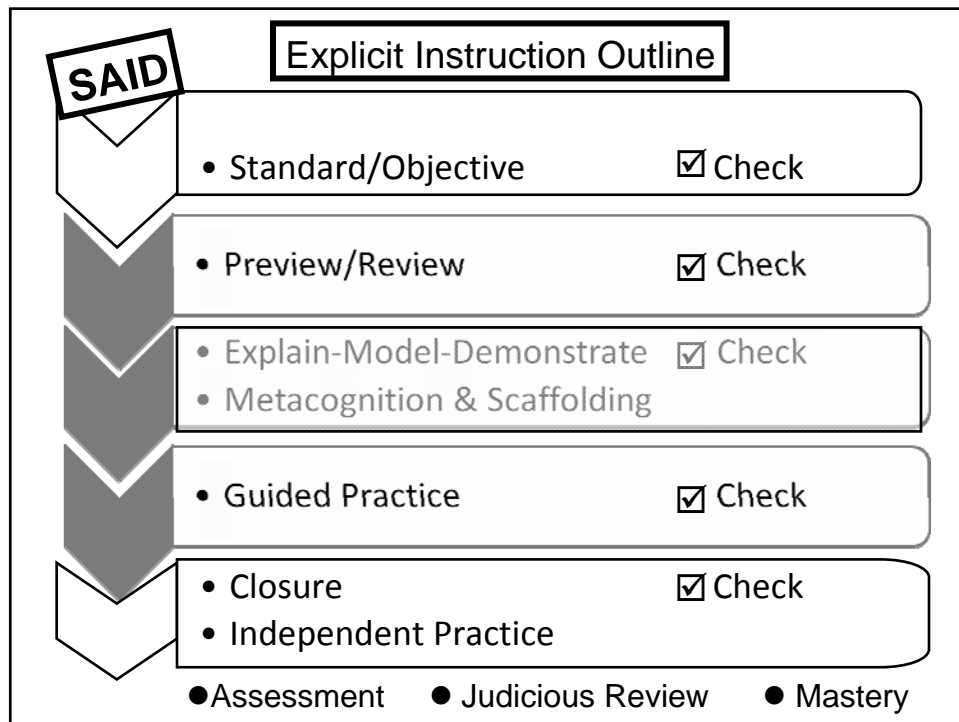
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Checks for Understanding

- | | |
|--------------------|---------------------------|
| • Partner Response | • Think Time |
| • Group Responses | • Go Kinetic |
| – Choral | • Popsicle Stick |
| – Random Reporting | • Time to Find the Answer |
| – Response Cards | • Paraphrase |
| | • Sentence Starter |

118



Explain – Model – Demonstrate

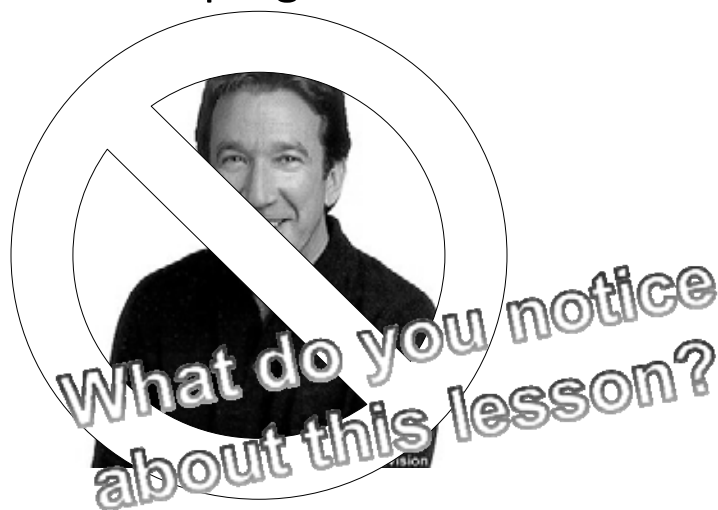
I do it

- How will new knowledge be explained? What is it? How is it done? Why is it important?
- How will new knowledge be modeled? How will a way of thinking or behaving be modeled?
- How will a demonstration of the objective be conducted to show how something works or is done?

121

Pragmatics

Lacks pragmatics



Corrective Feedback

- Provided throughout lesson as needed
 - Orally during class discussions to correct misconceptions
 - Most useful immediately following experience
 - Homework
 - Tests
 - Tasks/assignments

123

Corrective Feedback

- Feedback at student level
- Type of feedback impacts on achievement

Research Results for Corrective Feedback

Feedback Focus	Avg. Effect Size	Percentile Gain
Right/wrong answer	-.08	-3
Correct answer	.22	9
Repeat until correct	.53	20
Explanation	.53	20

Marzano, Pickering, & Pollock. *Classroom instruction that works*, 2001.

124

www.pde.state.pa.us/sas

Teaching in a Standards
Aligned System:
Linking
Assessment-Teaching-Learning

Effective Instruction is explicit, active and
demonstrates metacognition, and
Scaffolding



Scaffolding Instruction

- “Process of helping students to achieve more than they can on their own by skillfully structuring the environment to make it easier for them...”
 - Sufficient, not excessive support
 - Plan for removal

(Ellis, E., Larkin, M., & Worthington, L.)

Scaffolding Techniques

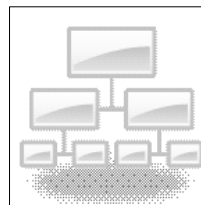
1. Metacognition
2. Offering explanations
3. Inviting student participation
4. Verifying and clarifying student understanding

(Hogan, K., & Pressley, M., 1997)

127

Scaffolding Strategies

- Metacognition
- Graphic organizers



128

Metacognition

...one's knowledge concerning one's own cognitive processes or anything related to them (Flavell 1976)

...there are metacognitive strategies that once learned, make critical thinking more likely (Willingham, 2007)

129

Key Metacognition Techniques

- Identifying what one knows and does not know
- Talking about thinking
- Keeping a thinking journal
- Planning and self regulating
- Debriefing the thinking process
- Self-Evaluation

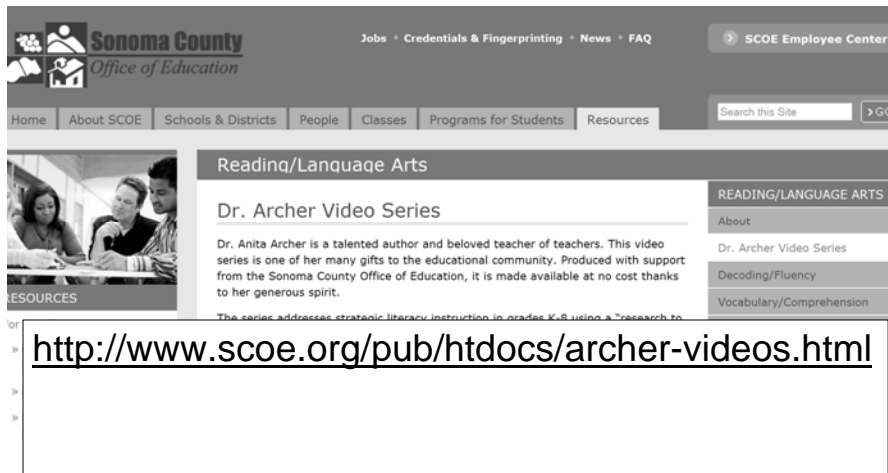
www.ericdigests.org

(Strategies for Developing Metacognitive Behaviors)

130

Lesson in Action

Watch the Dr. Anita Archer video on vocabulary instruction in a second grade classroom. Which effective instruction techniques do you see?



The screenshot shows the Sonoma County Office of Education website. The header includes the logo, navigation links (Jobs, Credentials & Fingerprinting, News, FAQ), and a search bar. The main content area is titled "Reading/Language Arts" and features the "Dr. Archer Video Series". A description states: "Dr. Anita Archer is a talented author and beloved teacher of teachers. This video series is one of her many gifts to the educational community. Produced with support from the Sonoma County Office of Education, it is made available at no cost thanks to her generous spirit." A sidebar on the right lists "READING/LANGUAGE ARTS" with links to "About", "Dr. Archer Video Series", "Decoding/Fluency", and "Vocabulary/Comprehension". A URL is displayed at the bottom of the screenshot: <http://www.scoe.org/pub/htdocs/archer-videos.html>

Three Metacognitive Strategies



- Think Alouds
- Yes, No, Why
- Anticipation Guide

Think Alouds

Before Reading:

- “I’m going to read a book about a nonfiction topic I really don’t understand. Maybe I need to reread or skim the text..”
- “I wonder why....”
- “I already know something about this topic. It is..”
- “I’ve seen this before when I went to...”
- “I see lots of pictures and charts. I’ll need to use those to help me understand...”
- “Before I continue reading , I need to stop and think about what I just read and plan to...”

133

Think Alouds

During Reading:

- “What might happen next? Why do I think that?”
- “Since I don’t understand this word I may need to...”

After Reading:

- “How well did I understand this?”
- What strategy worked for me?
- Do I need some help the next time?
- “How will I remember what I read?”

134

YES – NO – WHY?

Metacognitive strategies are obvious for students.

“Yes, metacognitive strategies are obvious for students because _____.

No, metacognitive strategies are not obvious for students because _____.

Kevin Feldman, 2007

135

YES – NO – WHY?

Yes	No	Why?
		SAS improves teaching and learning for all students because_____.
		PA teachers challenge and support all students to realize their maximum potential because _____.
		There are unintended consequences of using hand raising because_____.

136

Anticipation Guide

A strategy that forecasts the major ideas contained in a passage through the use of statements that activate students thoughts and opinions.

- Used before and after reading a selection or completing an activity.

137

ANTICIPATION GUIDE FOR SCIENCE

Acid Rain

Directions:

- Read the following statements concerning problems with acid rain.
- Put a check next to each statement with which you agree.
- Be prepared to support your views about each statement by thinking about what you know about acid rain and its effects. You will be sharing this information with other member of you group when you discuss the following six statements:

- ___ 1. Acid rain kills fish.
- ___ 2. The major cause of acid rain is fuel emissions from automobiles.
- ___ 3. Stopping acid rain will cause some people top lost their jobs.
- ___ 4. Acid rain problems are not yet serious in our region of the United States.
- ___ 5. Acid rain is made up of sulfur oxides.
- ___ 6. If acid rain is not controlled, we will experience a major environmental disaster.

Doug Buehl, 2001

138



Checks for Understanding

- Partner Response
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 - Choral
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- Paraphrase
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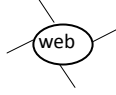
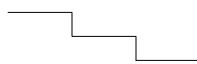

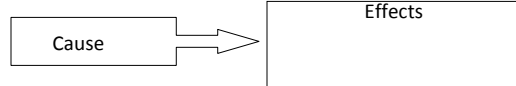
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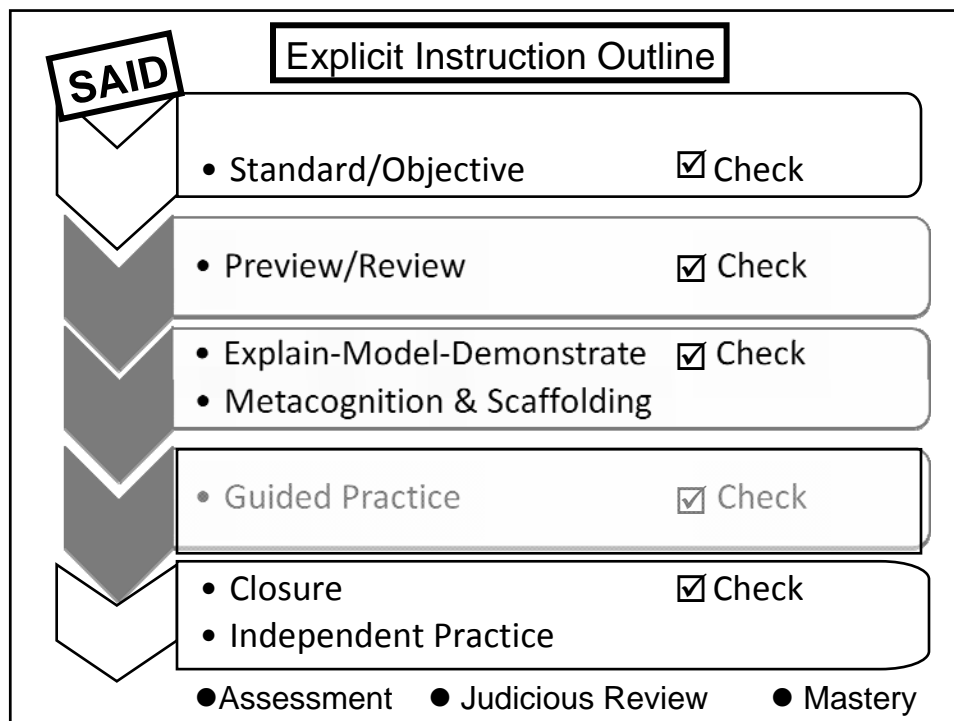
Graphic Organizers

- Prioritize
- **Explicitly teach** how to develop and use
- Teach it strategically
- Teach to mastery
- Assess use of the graphic organizer

140

Major Types of Graphic Organizers

1. Descriptive=Main Idea/Details 
2. Enumerative= Signal Words
First, second, next, last, finally 
3. Compare/Contrast=Alike/Different  Venn Diagram
4. Cause/Effect=Certain things result from certain conditions

5. Problem/Solution=Problem/Solution
? ————— ! →
6. Reaction=Student Reaction K-W-L Chart



Guided Practice

- Should be largest component of instruction!
- How will guided practice provide sufficient practice of the content that the student will be asked to do independently?
- Purpose
 - Guide initial practice
 - Reteach, if necessary

We do it!

143

Guided Initial Practice

- **Modified to fit material taught**
 - If teaching a process, steps worked under teacher's supervision, restating steps as students proceed
 - If teaching facts, more questions and answers
- **Needs to be sufficient for what students will be asked to do independently**
 - Develop examples/questions for all the different content students will be asked to do/know
- **Includes questions**
 - High frequency teacher-directed questions and student answers important for instruction
 - Average 24 during 50-minute period/More process than factual: 6 to 2

144

Guided Practice

- Reteach, if necessary
 - High percentage correct answers during guided practice
 - Suggestions for correct responses
 - 80% success when practicing new material
 - 95% success when reviewing
 - Checking for understanding frequently during practice
 - Think Time, Go Kinetic, Popsicle Sticks, Time to Find the Answer, Paraphrase

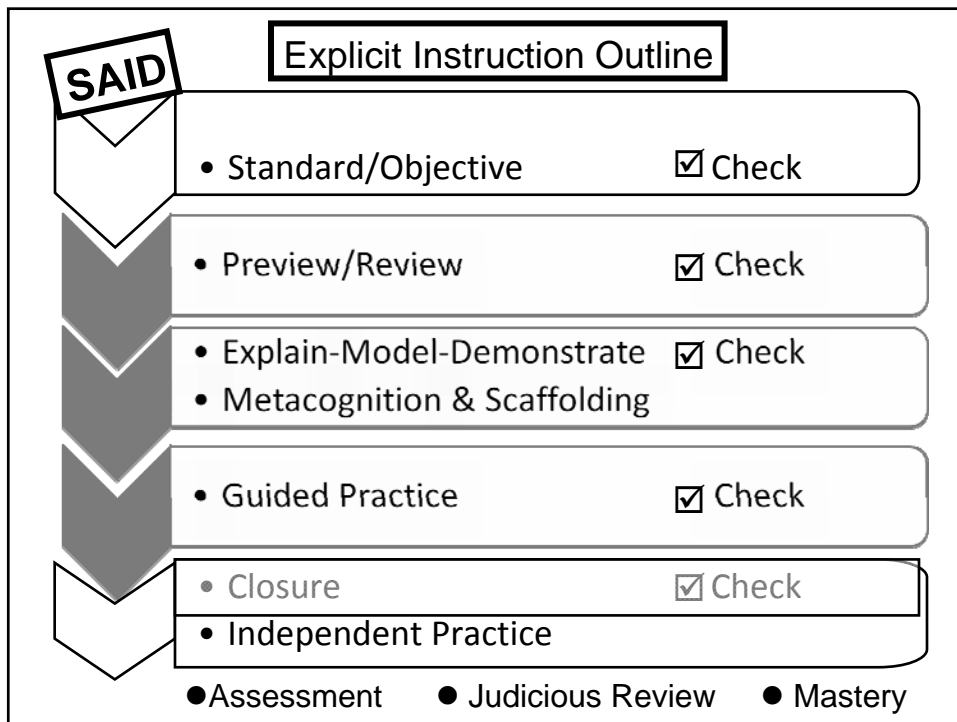
145



Checks for Understanding

- | | |
|--------------------|---------------------------|
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| – Random Reporting | • Time to Find the Answer |
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| | • Sentence Starter |

146



Closure

- Final check for understanding before students are given independent work
- Students not given independent work until they can show they are capable of doing all problems in the independent work assignment - without assistance

Closure

- Which students have reached objective and are ready for independent practice?
- Is more guided practice, or reteaching, necessary for some students?
- Should lesson strategy be altered?

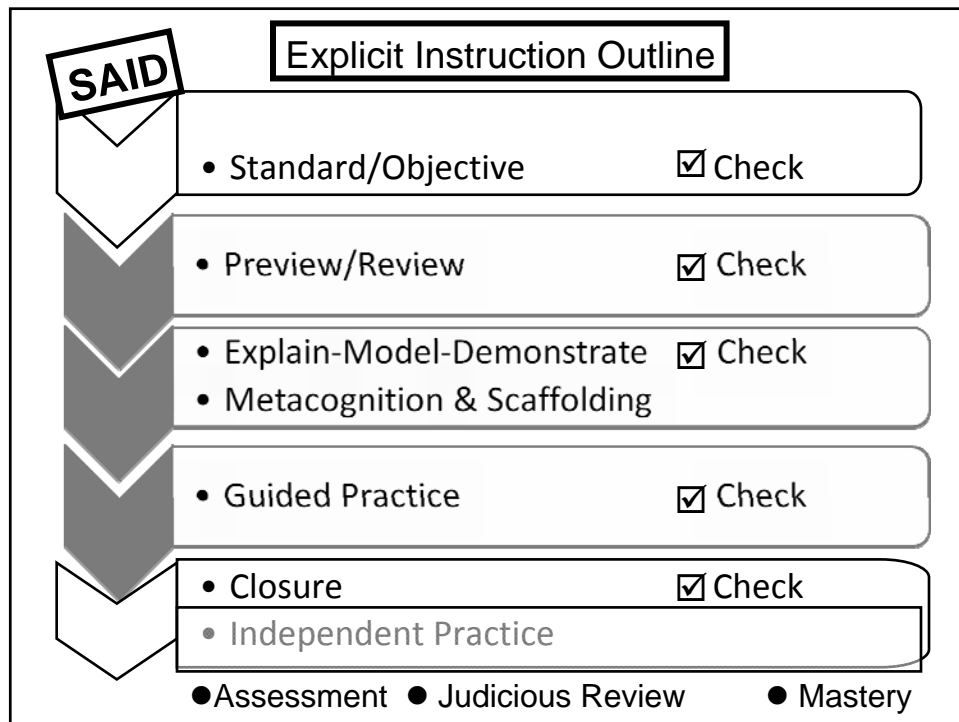
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Checks for Understanding

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- Paraphrase
- Sentence Starter

150



Independent Practice

- Must match the instruction!
- Intended to practice the skill, not learn the skill
- Provided when correct responses are given at least 80% of time in guided practice and confirmed during closure
- Gives students repetitions that are needed to
 - integrate new information with previous knowledge
 - become automatic in use of new skill

152

Independent Practice

- “Learning line”: Practice at least 24 times to reach 80% competency (*Marzano et al., 2001*)
- Students can chart accuracy and speed
- Celebrate legitimate progress toward learning goals
 - Make the recognition as personal as possible
 - Tokens increase motivation if given for accomplishing performance goals
 - Reinforce effort

Marzano, Pickering, & Pollock. Classroom instruction that works, 2001.

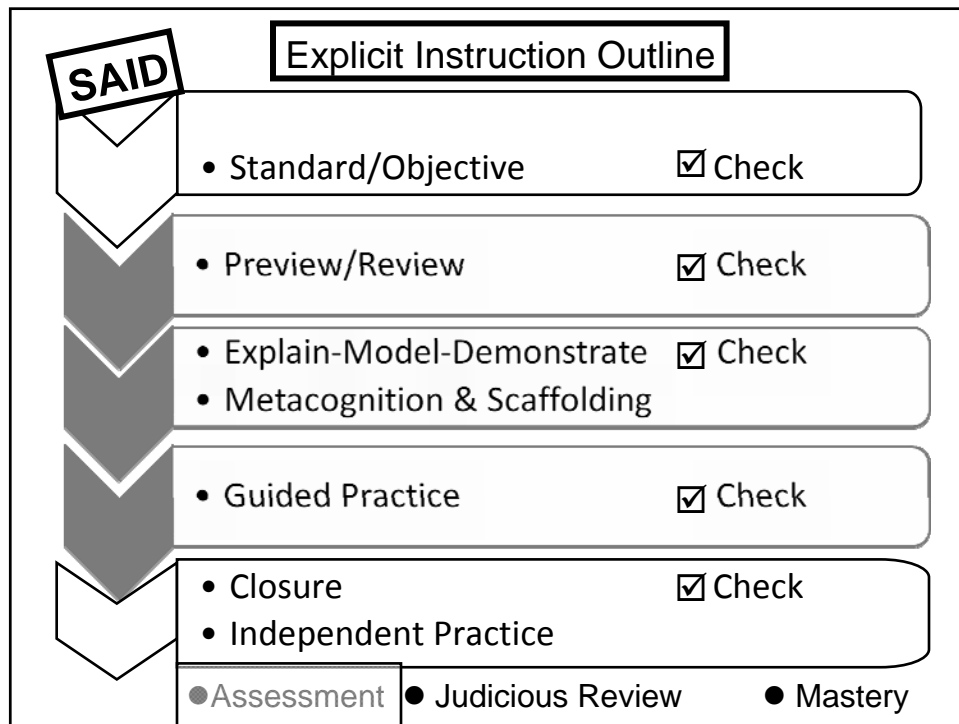
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Checks for Understanding

- | | |
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| | • Sentence Starter |

154



Assessment: Mastery

- Assessments should determine standards aligned proficiency
- Tests and assessments to identify errors for reteaching/remediation
- Uses of standard aligned assessments
 - Formative
 - Summative
 - Diagnostic
 - Benchmark

Assessment

- Timeliness of corrective feedback can impact on achievement
- Timing of tests can impact on achievement

	Focus	Effect Size	%-ile Gain
Timing of Feedback	Immediately after item	.19	7
	Immediately after test	.72	26
	Delayed after test	.17	6
Timing of Test	Immediately	.17	6
	One day	.74	27
	One week	.53	20
	Longer	.26	10

Marzano, Norford, Paynter, Pickering, & Gaddy. *A handbook for classroom instruction that works*, 2001.

157

Assessment: Mastery

CONTENT STANDARDS

Define what students must be taught and learn.



ASSESSMENTS

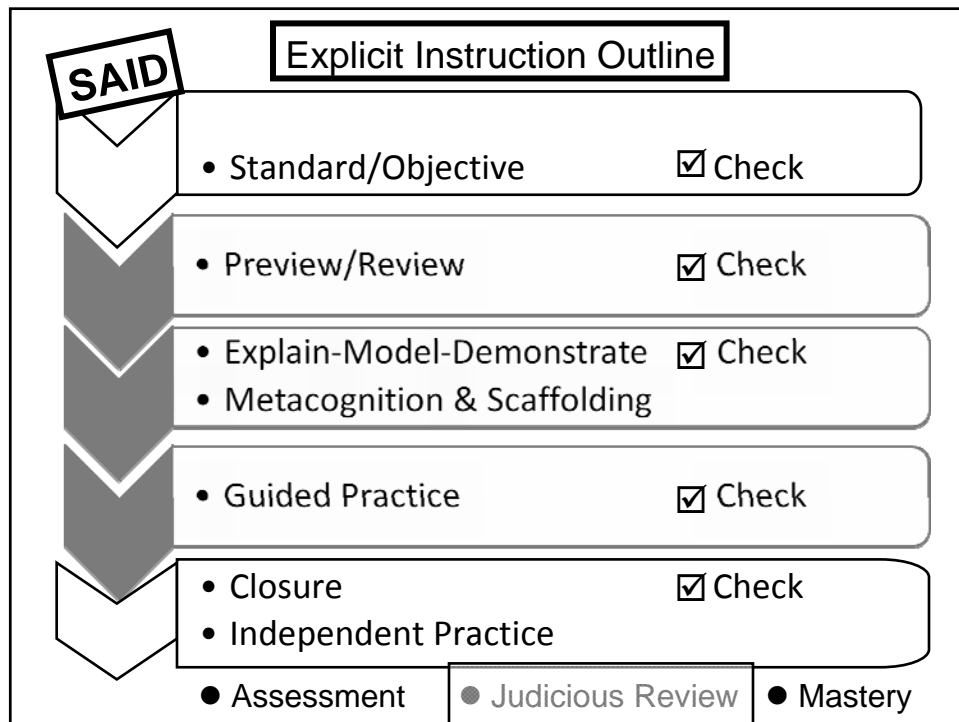
Measure if students have mastered the content standards.
Types of Assessments and Performance Criteria



INSTRUCTIONAL DECISIONS

Response Analysis: Identify needs of class/individual students

158



Judicious Review

- Identify the entire year's/quarter's worth of statements or questions students should know and be able to do.
- Put one on an index card. Count how many. Mix the cards up.
- Now daily do the square root of the number of cards.
- Can use as a preview/review.
- Graph class data, have students individually graph.

160

Standards Aligned Lesson Comes Alive Vocabulary – Grade 8

See Raven
Handouts



http://knowingpoe.thinkport.org/writer/annotated_play.asp

161

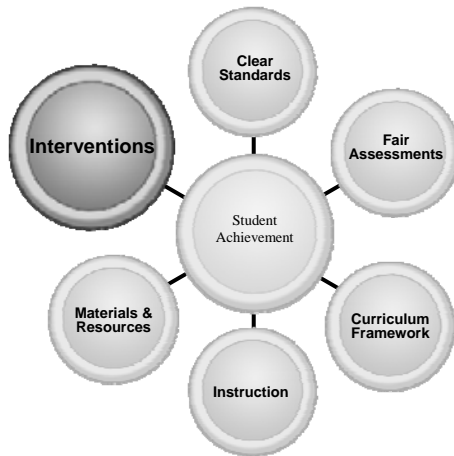
Standards Aligned System



Materials & Resources

Materials that address
the standards

Standards Aligned System



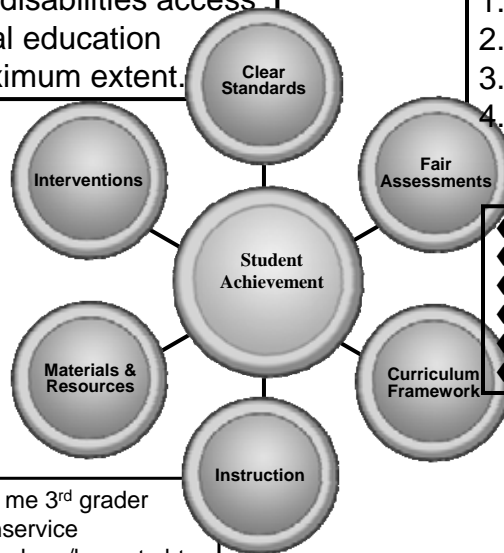
Interventions

A safety net/intervention system that insures all students meet standards.

Standards Aligned System

Least Restrictive Environment

Students with disabilities access to SAS general education Setting to maximum extent.



1. Summative
2. Formative
3. Benchmark
4. Diagnostic

- ♦ Big Ideas
- ♦ Concepts
- ♦ Competencies
- ♦ Essential Questions
- ♦ Vocabulary
- ♦ Exemplars

Do you believe in me 3rd grader
Dallas Teacher Inservice
<http://www.dallasisd.org/keynote.htm>

164

Reflection - VIPs

	Traditional vs. Standard Instruction	Standards-Aligned System (SAS)	Assessment	Effective Instruction	Differentiation
(VIPs)					
1					
2					
3					

With a partner, review the **Very Important Points** you captured for each section of today's presentation...

- *Traditional vs. Standard Instruction?*
- *Standards-Aligned System (SAS)?*
- *Assessment?*
- *Effective Instruction?*

165

Resources

- Bloom's Taxonomy
<http://www.nwlink.com/~donclark/hrd/bloom.html>
- Cooperative Learning
<http://www.ed.gov/pubs/OR/ConsumerGuides/cooplear.html>
- Ellis, E., Larkin, M., & Worthington, L. (No date). *Executive summary of the research synthesis on effective teaching principles and the design of quality tools for educators*. University of Alabama, AL. Retrieved November 11, 2002, from
<http://idea.uoregon.edu/~ncite/documents/techrep/tech06.html>
- Feldman, K. & Kinsella, K. *Narrowing the language gap: The case for explicit vocabulary instruction*, 2007.
- Gregory, G. & Kuzmich, L (2004). *Data Driven Differentiation in the Standards-Based Classroom*. (Corwin Press: Thousand Oaks, CA)
- Hogan, K. & Pressley, M. (1997). *Scaffolding student learning: Instruction approaches & issues*. (Brookline Books, Inc.: Cambridge, MA).
- Hunter, M. *Enhancing Instruction*
<http://www.hope.edu/academic/education/wessman/2block/unit4/hunter2.htm>

166

Resources

- Kame'enui, E., & Simmons, D. (1999) *Toward Successful Inclusion of Students with Disabilities* (Council for Exceptional Children)
- Lesson Plan Standards Aligned http://ims.ode.state.oh.us/ODE/IMS/Backpack/LessonPlans/LessonPlan_Template_PDF.pdf
- Making Standards Work. www.makingstandardswork.com
- Marzano, R., Pickering, D., & Pollock, J. (2001). *Classroom instruction that works*. (ASCD: Alexandria, VA).
- McKenzie, J. (2000). *Scaffolding for success*. [Electronic version] *Beyond technology, questioning, research and the information literate school community*. Retrieved October 12, 2002, from <http://fno.org/dec99/scaffold.html>
- Mid-Continent Research for Education and Learning. Products and Services. Standards. www.mcrel.org/standards/index.asp
- North Central Regional Educational Laboratory. *Reciprocal teaching*, <http://www.ncrel.org/sdrs/areas/issues/students/atrisk/at6lk38.htm>

167

Resources

- Penna. Department of Education. Standards Aligned Systems <http://www.pde.state.pa.us/>
- Sonoma County Office of Education. Anita Archer Video Series <http://www.scoe.org/pub/htdocs/archer-videos.html>
- Sprick, R., Garrison, M., & Howard, L. (1998). *CHAMPS: A proactive and positive approach to classroom management*. (Sopris West: Longmont, CO).
- Thinkport <http://www.thinkport.org/Classroom/lessons.tp> and <http://knowingpoe.thinkport.org/classconn/>
- Tomlinson, C (1999). *The Differentiated Classroom: Responding to the Needs of All Learners*. (ASCD: Alexandria, VA).
- Understanding by Design ASCD. <http://www.ubdexchange.org/>
- Ybarra, S. & Hollingsworth, J. *Explicit direct instruction* professional development module. DataWorks Educational Research, 2002, from <http://edtech.suhsd.k12.ca.us/PD/Docs/ActPriKno.doc>

168

Resources

- Ellis, E., Larkin, M., & Worthington, L. (No date). *Executive summary of the research synthesis on effective teaching principles and the design of quality tools for educators*. University of Alabama, AL. Retrieved November 11, 2002, from <http://idea.uoregon.edu/~ncite/documents/techrep/tech06.html>
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169

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170

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<http://edtech.suhsd.k12.ca.us/PD/Docs/ActPriKno.doc>

171



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